

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Martin C. Zieger

Application No.: 10/676,401

Filed: October 1, 2003

For: LOAD BUILDER

Examiner: Asfand M. Sheikh

Group Art Unit: 3627

Confirmation No.: 7555

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P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

In response to the Final Office Action mailed May 11, 2010, Applicant submits the following Appeal Brief pursuant to 37 C.F.R. § 41.37 for consideration by the Board of Patent Appeals and Interferences. Please charge any additional amount due or credit any overpayment to the Deposit Account 02-2666.

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**I. REAL PARTY IN INTEREST**

Martin C. Zieger, the party named in the caption, transferred his rights to the subject Application through an assignment recorded on Reel/Frame No. 014573/0292 in the patent application to SAP Aktiengesellschaft (AG), of Walldorf, Germany. Thus, as the owner at the time the brief is being filed, SAP AG is the real party in interest.

**II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that will directly affect, be directly affected by or have a bearing on the Board's decision in this Appeal.

**III. STATUS OF CLAIMS**

Claims 1-6 and 8-33 are currently pending. Claim 7 is canceled. Claims 12-33 have been withdrawn. The Appellant respectfully appeals the rejections of claims 1-6 and 8-11.

**IV. STATUS OF AMENDMENTS**

No amendments were submitted after the final Office action.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

Claim 1 recites a method comprising receiving a demand order including a set of products to be shipped (Fig. 1, 101 and page 5, lines 1-27); simulating a loading of a shipment of the set of products into a set of transports (Fig. 3, Fig. 1, 107, page 6, lines 17-25; and page 11, line 15-page 12 line 16); evaluating a shipping rule including a constraint for the shipment during the simulating, the shipping rule permitted to be a complex logical statement (Fig. 3, Fig. 1, 107, page 6, lines 17-25; page 11, line 15, page 12-line 16, and page 16, lines 14-27); attempting to fill each transport in the set in simulating the loading of the shipment (page 12, lines 1-14); and detecting a skipping of a range of the constraint and adjusting the simulating of the loading of the shipment in response to the skipping. (page 14, line 27 – page 15, line 13, Fig. 5, 507)

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-6 and 8-11 stand rejected under 35 U.S.C. sec. 103(a) as being unpatentable over U.S. Patent No. 6,937,992 issued to Benda et al (hereinafter “Benda”) in view of U.S. Patent Application No. 2003/0014286 by Cappellini (hereinafter “Cappellini”) and U.S. Patent No 3,970,832 by Itschner (hereinafter “Itschner”).

All of the claims do not stand or fall together. The basis for the separate patentability of the claims is set forth below.

## **VII. ARGUMENT**

### **A. Overview of the Cited References**

#### **1. Benda**

Benda discloses a vehicle capacity maximization system (Abstract). Benda uses a set of metrics to maximize loads in transports such that the inventory requirements of the receiving location are met. See col. 4, lines 25-39 of Benda.

However, Benda does not disclose range skipping detection or adjustment.

#### **2. Capellini**

Cappellini discloses a search engine of flexibly-defined paths applicable to the search of transportation-related route (Abstract). The system includes a spatial subsystem, reservation system, dimensional subsystem, rules and optimization subsystem and temporary subsystem amongst others (Abstract and [0185]). These systems and subsystems include calculation of optimal loading procedures for transport and transport schedules (See [0185] - [0189].)

Cappellini does not disclose range skipping detection or adjustment.

### 3. **Itchner**

Itchner discloses a system and method for obtaining an electrical signal corresponding to the enthalpy of steam expressed by Koch's state equation (Abstract). In the form of Koch's state equation which is used, terms of minor significance are neglected and the equation is converted into a logarithmic form suitable for solution by electrical analog computer elements (Abstract). A circuit arrangement comprised of adders, multipliers and function generators is disclosed for simulating and solving the potential and exponential functions in the formula for the enthalpy.

Itchner does not disclose range skipping detection or adjustment.

### B. **Rejection of Claims 1-6 and 8-11 Under 35 U.S.C. § 103(a)**

Claims 1-6 and 8-11 stand rejected under 35 U.S.C. sec. 103(a) as being unpatentable over U.S. Patent No. 6,937,992 issued to Benda et al (hereinafter "Benda") in view of U.S. Patent Application No. 2003/0014286 by Cappellini (hereinafter "Cappellini") and U.S. Patent No 3,970,832 by Itchner (hereinafter "Itchner").

The Supreme Court noted that the analysis supporting a rejection under 35 U.S.C. § 103 must be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "[r]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396. The Examiner has not presented a clear line of reasoning to establish a *prima facie* case of obviousness under *KSR*.

#### 1. **Independent Claim 1; Dependent Claims 6, 8, 9 and 10**

Claim 1 includes the elements of "detecting a skipping of the range of the constraint and adjusting the simulating of the loading of the shipment in response to the skipping." The Examiner has admitted that Benda and Cappellini fail to teach or suggest these elements of claim 1. See page 4 of the Final Office Action mailed May 11, 2010. The Examiner relies on Itchner

to cure these defects of claim 1 citing col. 2, lines 1-14 in support of this position. However, col. 2, lines 1-14 of Itschner discuss the process of producing a calculation for Koch's state equation where certain terms of negligible significance are ignored, that is they are not utilized in the calculation of the state equation. See for example, Itschner col. 2, lines 1-20. The Examiner does not clarify how the omission of insignificant terms of the equation is related to the *detection* of a skipping of a range in the Final Office Action. The Examiner states "ignoring (e.g. is interpreted to be skipping) and further simulation...of temperature ranges (e.g. is interpreted to be a range of constraint values that are adjusted based on the skipping)." See page 5 of the Final Office Action. The "further" simulation of temperature ranges in Itschner does not reflect *adjustment* based on the omission of the terms, because the insignificant terms can only be omitted because they have no effect on the outcome of the equation. In other words, the very reason the terms can be omitted is that minimal or no adjustment is needed when omitting them due to their insignificance in producing the results of the equation. Therefore, the Examiner has failed to show that Itschner teaches or suggests the detection of a skipping of a range constraint and the adjustment to the simulation based on the detected skipping of claim 1.

Further, Itschner is non-analogous art. Itschner is an apparatus and method for "obtaining an electrical signal corresponding to the specific enthalpy of steam," (Abstract of Itschner) thus it is wholly unrelated to the field of supply chain management of Benda and Cappellini. In the Final Office action, the Examiner argued that "[o]ne of ordinary skill in the art would be motivated to combine the teachings in order to provide method by which data can be reproduced electrically by simple means of accuracy, sufficient for control purposes in a relatively large range." See page 5 of the Final Office Action. The Examiner does not provide any explanation as to what meaning this would have in the context of the supply chain management systems of Benda and Cappellini. Thus, the Examiner does not properly combine Itschner with Benda and Cappellini. See also MPEP§ 2141.01(a) 1 ("a reference in a field different from that of the Applicants may be reasonably pertinent if it is one which, because of the matter which it deals, logically would have commended itself to the inventors' attention considering his or her invention as whole.") The Examiner has made no showing that Itschner, which describes a hardware circuit to obtain an electrical signal corresponding to the specific enthalpy of stream, would have been a reference that "logically would have commended itself to

an inventor's attention," because the inventor would have been an individual in the field of supply chain management and matters related to the enthalpy of steam are clearly not relevant to supply chain management.

The Examiner also presented arguments in support of his combination of Itschner with Cappellini and Benda in the Examiner's Answer mailed September 30, 2009 and the Advisory Action mailed February 17, 2009. The most recent Final Office Action is largely a reproduction of the Final Office Action mailed December 19, 2008 and thus does not further the discussion of the rejection of these claims or answer the Appellants arguments set forth in the Reply submitted on November 30, 2009 in response to the Examiner's Answer or in the Appeal Brief submitted May 7, 2009. For the sake of advancing the discussion the Appellants include these arguments herein below.

In the Examiner's Answer, the Examiner stated that "the examiner notes Itschner is not analogous art with respect to loading a shipment, however the element combined with Itschner is analogous to the idea of a skipping range during a simulation of a rule (e.g. Koch sate (*sic*) equation)." See page 10 of the Examiner's Answer. However, this statement clearly shows that the Examiner is misconstruing and mis-applying the relevant standard for determination of analogous art. In *KSR International Co. v. Teleflex, Inc.* 82USPQ2d 1385, 1397 (2007), the court stated that "[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." The MPEP further clarifies "a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole." See MPEP § 2141.01(a) I, TO RELY ON A REFERENCE UNDER 35 U.S.C. § 103, IT MUST BE ANALOGOUS PRIOR ART.

The Examiner has not shown that the issue of skipping a range during a simulation of the loading of a shipment, which is the subject of the Applicant's invention and the recited claims, is a need or problem known in the field of endeavor at the time of the invention. Rather, the

Examiner's position has been that Itschner presents a solution analogous to the Applicant's claims. See page 10 of the Examiner's answer "the element combined from Itschner is analogous to the idea of a skipping range during a simulation of a rule." This demonstrates that the analysis is driven by hindsight and not based on a proper ground of combination where the relied upon aspect is analogous to a known problem in the field at the time of the invention.

Further, the Examiner has not shown that Itschner would have commended itself to the inventor's attention in this field. The Examiner's assertion that Itschner is analogous art is based on a limited aspect of the invention, which has not been shown to be related to a known problem in the field of endeavor, thus there is no reason that one of ordinary skill in the art would be familiar with or look to Itschner as it has not been shown to be related to any problem that one of ordinary skill in the art would have been concerned with at the time of the invention. Therefore, Itschner is not properly combined with the other references to render the claims obvious.

The Examiner further argued in the Examiner's Answer that he has provided "motivation for the combination of Itschner" stating that the "method by which data can be reproduced electrically by simple means with accuracy sufficient for control purposes over a relatively large range (see at least, Itschner, col. 1, lines 48-51) which interpreted would relate to the idea of using an electrical simulation to provide accuracy for a given range of control." See page 11 of the Examiner's Answer. In so far as this statement can be understood, the Examiner appears to be taking the position that one skilled in the art would be motivated to combine Itschner with the other references to perform an electrical simulation over a given range of data. The Applicant has been unable to discern how this would be germane to the simulation of shipment loading, which has no patent correlation with electrical simulation. Thus, the Examiner has failed to clearly articulate a basis for establishing the obviousness of these claims because the Examiner has not established a motivation to combine the references.

The Examiner also appears to argue on page 11 of the Examiner's Answer that the combination of Itschner with Benda and Cappellini, would have been a routine combination with a predictable result. The Examiner states "one of ordinary skill in the art would have been able to realize that simulation via the use of ignoring a range of values (See Itschner, col. 2, lines 1-



14) could be implemented into the simulation of loading a container for maximum capacity (see Cappellini, paragraphs [0183]-[0184] and [0186]) and from such a combination obtain a predictable result.” However, this statement is entirely conclusory. As set forth above, the Examiner has not articulated how one of ordinary skill in the art would have been aware of this problem, been exposed to Itschner due to it being in a non-analogous art, or how the method for obtaining an electrical signal corresponding to the enthalpy of steam expressed by Koch’s state equation disclosed by Itschner would have been incorporated into a load shipment simulator, much less any benefit that would have been derived from doing so. The system of Itschner shares no common architecture or structure with the other references that would enable one skilled in the art to simply extrapolate and combine the aspects of Itschner that are being relied upon into those aspects of Cappellini and Benda that are being relied upon to produce a result that would read on the elements of the claims.

Prior to the Examiner’s Answer the Examiner also discussed this rejection in the above-mentioned Advisory Action where the Examiner stated:

The examiner interprets that the ignoring of a a (*sic*) given range of pressure temperatures during a simulation to be a constraint (e.g., range) that is skipped (e.g. ignored) during a simulation and further the reduction of the negligible significance of these ignored ranges during the Koch state equation calculation is the actual adjustment of the equation based on the skipped constraint (e.g., ignored range). The examiner notes this is an analogous element to the applicant’s claimed invention of a skipping range and adjustment during a simulation and further that one of ordinary skill in the art would have had knowledge to combine the elements of itschner to Benda in view of Cappellini to product (*sic*) a predictable result.

See page 2 of the Advisory Action. In the Advisory Action, the Examiner provides no explanation as to how the Itshner reference would have commended itself to the attention of one of ordinary skill in the art. Also, the assertion that the hardware circuit for producing an electrical signal corresponding to the specific enthalpy of steam could be combined with the supply chain management systems of Benda and Cappellini is entirely conclusory. The Examiner’s apparent

position that the removal of the insignificant terms (i.e., the “ignoring” discussed in the above passage) from the Koch equation is equivalent to the “skipping of a range” recited in the claims is nonsensical when juxtaposed with the apparent position of the Examiner that the same removal of the insignificant terms is equivalent to the “adjusting” (i.e., “the reduction of the negligible significance of these ignored ranges”), because this results in an interpretation of the reference that the insignificant terms are removed in response to removing the insignificant terms. The claims recite that the “adjusting” is “in response to the skipping.”

The Appellant assumes that the Examiner is operating under different assumptions than the Appellant about the teachings of Itschner when he states “the reduction of the negligible significance of these ignored ranges during the Koch state equation calculation is the actual adjustment of the equation based on the skipped constraint (e.g., ignored range).” The Examiner provides no support for this statement (i.e., no citation to Itschner) and the statement implies that the Koch equation is modified during its calculation. However, the Appellant has found no discussion of any changes during calculation, much less in response to any modification based on insignificant terms. Rather, from the outset, simplified versions of the Koch equation are utilized and the known errors caused by the simplified versions of the equation are corrected afterward. See for example, Itschner col. 3, lines 27-45 (describing the fixed circuitry corresponding to different parts of the larger function) and col. 4 lines 16-34 (describing correction of the output). Thus, the Appellant believes the Examiner has not provided a rationale that meets the requirements of *KSR*.

Therefore, for the reasons mentioned above, namely, that the Examiner has failed to establish that the cited references can be combined to disclose each of the elements of claim 1, that Itschner is non-analogous art and that the rationale for the obviousness rejection does not meet the requirements of *KSR*, the Appellant believes the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, it is requested that the obviousness rejection of claim 1 be overturned.

Claims 2, 4 – 6, and 8 - 11 depend from independent claim 1 and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to independent

claim 1, these claims are not obvious over Benda, Cappellini and Itchner. Accordingly, reconsideration and withdrawal of the obviousness rejection of these claims are requested.

## 2. Claim 3

Claim 3 depends from independent claim 1 and thus incorporates the limitations thereof. For at least the above reasons regarding independent claim 1, the cited references do not teach or suggest all the limitations of claim 3. Accordingly, the Appellant respectfully requests that this rejection be reversed. Further, the Appellant believes that this claim is separately patentable for the reasons below.

Claim 3 recites “wherein the complex logical statement is defined by a user.” The Examiner contends that Capellini discloses this paragraph [0189]. *See* Final Office Action page 4. The Appellant respectfully disagrees.

Paragraph [0189] discusses “various rules [that] can be provided on how to spread the boxes over multiple containers.” The Appellants have not noted any explicit mention of how such rules are provided in the cited paragraph. Paragraph [0189] appears to imply that such rules are obtained from third party software providers “[f]unctions [such] as these are also known to those familiar to the art of transport space administration and some examples are Visual Load™ developed by August Design, Inc. of Adrmore, Pasadena ([www.august-design.com](http://www.august-design.com)), Truckfill™ developed by Cape Systems, Inc. of Dallas, Tex., U.S.A.” See lines 6-13 of paragraph [0189] of Capellini. Thus, the Examiner has failed to support his assertion that paragraph [0189] of Capelline discloses user defined rules. The Examiner has not relied upon Benda or Itchner to cure these defects of Capellini.

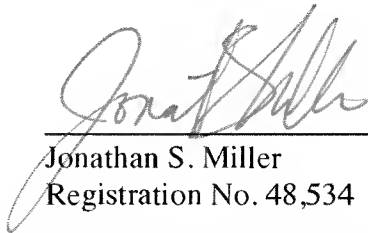
In the Examiner’s Answer, the Examiner cites paragraph [0186] of Cappellini, specifically the statement “[t]his allows you to set up more complex loading rules.” The Examiner takes the position that the “you” could refer to a user. However, this is not explicitly stated and reading the sentence in context does not require this interpretation. When viewed in light of the discussion above in regard to the following paragraph [0189] the most consistent

interpretation would be that the establishment of complex loading rules would be through third party software and not a user. Therefore, the Examiner has failed to set forth a clear articulation of the rationale as to how the cited references render the elements recited in claim 3 obvious as required by *KSR*. Accordingly, the Examiner has failed to present a *prima facie* case of obviousness. It is requested that the obviousness rejection of claim 3 be overturned.

In view of the foregoing, the Appellant respectfully requests that the Board overturn the rejections of claims 1-6 and 8-11.

Respectfully submitted,  
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

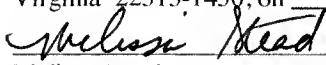
Dated: 10/18/10

  
Jonathan S. Miller  
Registration No. 48,534

1279 Oakmead Parkway  
Sunnyvale, CA 94085-4040  
(310) 207-3800

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**VIII. CLAIMS APPENDIX**

1. (Previously Presented) A method comprising:  
receiving a demand order including a set of products to be shipped;  
simulating a loading of a shipment of the set of products into a set of transports;  
evaluating a shipping rule including a constraint for the shipment during the simulating,  
the shipping rule permitted to be a complex logical statement;  
attempting to fill each transport in the set in simulating the loading of the shipment; and  
detecting a skipping of a range of the constraint and adjusting the simulating of the  
loading of the shipment in response to the skipping.
2. (Original) The method of claim 1, further comprising:  
simulating one of a balanced load and a straight load of the shipment in the transport.
3. (Original) The method of claim 1, wherein the complex logical statement is defined by a  
user.
4. (Original) The method of claim 1, further comprising:  
upsizing the shipment to fill the transport.
5. (Original) The method of claim 1, further comprising:  
downsizing the shipment to match a maximum capacity of the transport.
6. (Original) The method of claim 1, wherein the shipping rules include at least one

constraint including one of a weight constraint, a volume constraint, and a product combination constraint.

7. (Cancelled)
8. (Original) The method of claim 7, wherein simulating includes incrementing an amount of a first product in the shipment by one shipping unit.
9. (Original) The method of claim 8, wherein the shipping unit is a pallet.
10. (Original) The method of claim 1, further comprising:  
increasing the amount of the set of products in the shipment by a proportionate number of shipping units of each product.
11. (Original) The method of claim 1, further comprising:  
attempting to fill at least one transport, the at least one transport having multiple destinations.
12. (Withdrawn) An apparatus comprising:  
a means for simulating a loading of a shipment into a transport;  
a means for determining if the shipment fills the transport;  
a means for checking if a set of shipping rules are met for the shipment loaded into the transport, the shipping rules including a logical statement; and

- a means for detecting a non-monotone constraint violation.
13. (Withdrawn) The apparatus of claim 12, further comprising:  
a means for simulating one of a balanced load and a straight load of the shipment.
14. (Withdrawn) The apparatus of claim 12, wherein the logical statement is user defined.
15. (Withdrawn) The apparatus of claim 12, further comprising:  
a means for calculating an increase of a shipment size to include a resource demand for a subsequent time period.
16. (Withdrawn) The apparatus of claim 12, further comprising:  
a means for calculating a decrease in a size of a shipment to match a transport size.
17. (Withdrawn) The apparatus of claim 12, further comprising:  
a means for detecting a skipping of a range of a constraint.
18. (Withdrawn) A machine readable medium containing therein a set of instructions which when executed cause a machine to perform a set of operations comprising:  
receiving a demand order including a set of products to be shipped;  
simulating a loading of a shipment of the set of products into a set of transports;  
evaluating a shipping rule for the shipment, wherein the shipping rule is permitted to be a complex logical statement;



comparing effects of upsizing and downsizing the shipment of the set of products during the simulating; and

attempting to fill each transport in the set in simulating the loading of the shipment.

19. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations, further comprising:

simulating one of a balanced load and straight load of the shipment in the transport.

20. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations, further comprising:

receiving a user defined shipping rule.

21. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations, further comprising:

increasing a size of the shipment to fill the transport by adding products from a future demand order.

22. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations, further comprising:

decreasing a size of the shipment to match the maximum capacity of the transport.

23. (Withdrawn) The machine readable medium of claim 18, wherein the shipping rules include at least one constraint including one of a weight constraint, a volume constraint, and a product combination constraint.

24. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations, further comprising:

detecting a skipping of a range of a constraint.

25. (Withdrawn) The machine readable medium of claim 18, wherein simulating includes incrementing an amount of the set of products in the shipment by one shipping unit.

26. (Withdrawn) The machine readable medium of claim 25, wherein the shipping unit is a pallet.

27. (Withdrawn) The machine readable medium of claim 25, having further instructions stored therein, which when executed cause a machine to perform a set of operations further comprising:

increasing the amount of the set of products in the shipment by a proportional number of shipping units of each product.

28. (Withdrawn) The machine readable medium of claim 18, having further instructions stored therein, which when executed cause a machine to perform a set of operations further comprising:

attempting to fill a second transport, the second transport having multiple destinations.

29. (Withdrawn) An apparatus comprising:

a set of demand order modules including a set of products to be shipped in a set of transports;

a set of shipping rule modules permitted to include a complex logical statement;

a loading module to simulate the loading of a shipment of the set of products into the set of transports; and

a processing device to evaluate the complex logical statement in a shipping rule module and to execute the loading module to simulate loading a shipment of the set of products to be shipped and to attempt to fill each transport in the set of transports.

30. (Withdrawn) The apparatus of claim 29, further comprising:

a storage device to store at least one of the set of demand order modules, the set of shipping rule modules, and the loading module.

31. (Withdrawn) The apparatus of claim 29, further comprising:

a skip detection module to detect the skipping of a constraint.

32. (Withdrawn) The apparatus of claim 29, further comprising:

an upsizing module to increase a size of a the shipment to fill the transport.

33. (Withdrawn) The apparatus of claim 29, further comprising:

a downsizing module to decrease the size of a shipment to match the maximum capacity of the transport.

**IX. EVIDENCE APPENDIX**

No evidence is submitted with this appeal.

X. **RELATED PROCEEDINGS APPENDIX**

No related proceedings exist.